Faculty of Civil and Environmental Engineering					
Study programme:	**Civil engineering**	Degree level: full-time	**Bachelor's degree**		
Specialization		Diploma path:	**-**		
Module name:	**Concrete Technology**				
Module type:	**obligatory**	Semester:	ECTS	Module ID:	
No. of hrs in semester:	L - 15 C - LC- 30 P- SW- S-				
Prerequisites:	*Building Materials*				
Teaching methods:	*lecture, laboratory class*	*Assessment:*	*Evaluation must be relevant to the intended learning outcomes*		
		lecture - written exam, laboratory class - evaluation of reports, written tests;			
Aims and objectives:	*Classification, properties and testing of technical properties of concrete constituents, fresh and hardened concrete. Ability to select proper concrete constituents and design concrete composition. Processes in concrete production.*				
Module content:	*Aggregate for concrete and mortars. Mineral binders. Mixing water for concrete. Additions and admixtures for concrete. Concrete according to the standard PN-EN 206-1 Concrete – Part 1: Specification, performance, production and conformity. Properties of fresh and hardened concrete and their testing. Concrete mix design calculation.Technologiacal processes in concrete production.*				

Learning outcomes	*Write min. 4, max. 8 learning outcomes in the following order: knowledge - skills - competences. Each learning outcome must be verifiable.*	*Relevance to the programme learning outcomes*
LO1	**Applies legal regulations related to concrete**	K_W15, K_W16, K_U20
LO2	**Identifies phenomena occuring during setting and hardening of concrete, mechanisms of admixtures and additions action**	K_W08
LO3	**Identifies processes and technological requirements in concrete productions**	K_W08, K_W15, K_U07
LO4	**Qualitatively and quantitatively selects concrete constituens**	K_W08, K_W19 SD, K_U07
LO5	**Evaluates technical parameters of concrete**	K_W08, K_U08
LO6	**Uses Internet and other data bases**	K_U23
LO7	**Works in a group**	K_K03
LO8		

kload			
	lecture attendance	15 x 1h =	15
	participation in classes, laboratory classes, etc.	15 x 2h =	30
	preparation for classes, laboratory classes, projects, seminars, etc.		5
	work on projects, reports, etc.		5
	participation in student-teacher sessions related to the class / seminar /		2

student work	implementation of project tasks		25
	preparation for and participation in exams/tests		25
		TOTAL:	107
quantitative indicators	Student workload - activities that require direct teacher participation	53	ECTS
			2
	Student workload - practical skills activities	67	2
basic references:			
supplementary references:			

learning outcomes	*methods of assessing learning outcomes*	type of class (if more than one) where the outcomes are assessed
LO1	written exam, evaluating the student's reports	L, LC
LO2	written exam	L
LO3	written exam,evaluating the student's reports,written test	L, LC
LO4	evaluating the student's reports,written test	L, LC
LO5	evaluating the student's reports, written test	LC
LO6	written exam, written test	L, LC
LO7	participation in laboratory classes	LC
LO8		

Department:	Deprtment of Building Materials, Technology and Organization	Group instructors:	Prof. Michał Bołtryk, dr inż. Dorota Małaszkiewicz,dr inż. Beata Backiel-Brzozowska, dr inż. Dorota Dworzańczyk-Krzywiec, dr inż.Edyta Pawluczuk
Date:	30.09.2013	Coordinator:	dr inż. Dorota Małaszkiewicz